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PLANT IMMIGRANTS

No. 128. DECEMBER, 1916.

GENERA REPRESENTED IN THIS NUMBER.

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210. Fruits of the White Sapote, *Casimiroa edulis.*

Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual catalogue entitled NEW PLANT INTRODUCTIONS which will be sent you in the autumn and in which will be listed all plants available at that time. Regular requests checked off on the check list sent out with the catalogue are not kept over from year to year. If you are especially interested in some particular plant in the catalogue write and explain in detail your fitness to handle it.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

David Fairchild,

Agricultural Explorer in Charge.

July 6, 1917.

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Acer tetramerum Pax. (Aceraceae.) 43813. Plants of **maple** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A tree from central and western China, with oval or oblong leaves from 2 to 3½ inches long, and staminate flowers in few-flowered sessile racemes. The keys are slender-stalked and the nutlets are thick and strongly veined. It is graceful and hardy, and very variable, and reaches a height of 25 feet. (Adapted from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 202.)

Achradelpha viridis (Pittier) O. F. Cook. (Sapotaceae.) 43788. Seeds of **injerto** from Guatemala City, Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer. "Fifty seeds from fruits purchased in the market of Guatemala City. The injerto is a common tree in this part of Guatemala. Unlike its near relative, the sapota (*Lucuma mammosa*), which seems to thrive only at compartively low elevations in the tropics, the injerto is grown as high as 5000 or 6000 feet, and should, therefore, stand a better chance of succeeding in California and Florida than the sapote, which has, so far, been a failure in those states. The tree grows to a height of about 40 feet in this region, and has long slender leaves suggesting those of the sapote. The fruits vary somewhat in shape, but are commonly round to oval, often pointed at the tip. They are two to three and a half inches in diameter, smooth, dull yellow-green in color, sometimes becoming almost dull yellow. The skin is not thick, and adheres closely to the flesh, which is red brown in color, soft and melting, sweet, with a pleasant flavor, somewhat resembling that of the sapote, but better. The large seed (sometimes there are two) is hard and polished, deep brown in color, and is easily removed from the pulp." (Popenoe.)

Aeschynomene elaphroxylon (Guill. & Perr.) (Fabaceae.) 43767. Seeds of **ambach** from Cairo, Egypt. Presented by the Director, Horticultural Division, Minister of Agriculture, Giza Branch. A leguminous tree, with compound leaves and yellow flowers, found growing in many places in tropical Africa. The hairy pods are often sickle-shaped, with two or more joints. When in flower this tree is very ornamental. The wood is exceedingly light, strong, and durable, and is used by the natives for making small boats and rafts. It might be commercially used for paper pulp. (Adapted

from Kew, Bulletin Miscellaneous Information, Additional Series 9, pp. 199, 200, under *Herminiera elaphroxylon*, and from Engler & Prantl, Naturlichen Pflanzenfamilien, III.3, p. 319.)

Berberis brachypoda Maximowicz. (Berberidaceae.) 43818. Plants of **barberry** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A bush from western China, 4 to 7 feet high, with 3-parted spines, oval serrate leaves, yellow flowers in long slender panicles, and scarlet fruit which are up to ½ inch in diameter. In its native country this barberry grows at elevations of 5200 to 11700 feet. (Adapted from Sargent, Plantae Wilsonianae, part 1, p. 375, 1913, and from Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 2, p. 922.)

Berberis diaphana circumserrata Schneider. (Berberidaceae.) 43819. Plants of a **barberry** from Jamaica Plain, Mass. Originally from the Tai-pei-shan, Shensi, China. Presented by the Arnold Arboretum. A bush from central China, up to 7 feet high, with roundish oval leaves with very numerous and slender spine-tipped serrations. The spines are 3-parted, about ½ inch long, and the bright yellow flowers, ½ inch wide are solitary or in twos or threes on a common stalk. The scarlet fruits are oblong, with slightly bloom, and nearly ½ inch long. In autumn the leaves turn scarlet. Differs from the common barberry in its few flowers and large fruits. (Adapted from Sargent, Plantae Wilsonianae, vol. 1, part 3, p. 354, and from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 491.)

Berberis poiretii Schneider. (Berberidaceae.) 43821. **Barberry** plants from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A shrub found in northern China and Amurland, with slender, arching branches and spines about 1/3 inch long. The leaves are entire, narrowly lance-shaped, about an inch long and green beneath. The yellow flowers occur in many-flowered racemes from 1 to 2 inches long, and the deep blood-red fruits are oval-oblong. It is hardy and handsome, but is not often found in cultivation. Differs from the ordinary barberry in its entire leaves and blood-red fruit. (Adapted from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol 1, p. 490.)

Berberis sargentiana Schneider. (Berberidaceae.) 43823. Cuttings of **barberry** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A black-berried barberry from western Hupeh, China, reaching a height of 7 feet. It is the only evergreen barberry which has proved entirely hardy at the Arnold Arboretum. (Adapted from Sargent, Plantae Wilsonianae, vol. 1, p. 359.)

Betula schmidtii Regel. (Betulaceae.) 43828. Plants of a **birch** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A large tree with thick branches, found only in the province of Shimotsuke, Hondo, Japan. It grows to be 65 feet tall, with a trunk $3\frac{1}{2}$ to $7\frac{1}{2}$ feet thick, and black bark which falls off in thick, rather small plates. The finely serrate leaves are short-stemmed, and the catkins are narrow, stiff and erect. (Adapted from Sargent, Plantae Wilsonianae, vol. 2, part 3, pp. 475, 476.)

Bignonia unguis-cati L. (Bignoniaceae.) 43769. Seeds from Cairo, Egypt. Presented by the Director, Horticultural Division, Ministry of Agriculture, Giza Branch. A woody climber, with compound, evergreen leaves and trumpet-shaped, orange-yellow flowers about 2 inches long. This plant, which is a native of Argentina, will stand a little frost if grown in the open in the southern United States, and is conspicuous and interesting because of the beauty and profusion of its flowers. (Adapted from Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 502.)

Bridelia retusa (L.) Sprengel. (Euphorbiaceae.) 43759. Seeds from Matania El Saff, Egypt. Presented by Mr. Alfred Bircher, Middle-Egypt Botanic Station. "A small Indian tree which grows in every kind of soil. It flowers in November and the black berries hanging in long racemes ripen early in spring. There is not much pulp on them but they might enhance by continuous culture. A sauce can be prepared with the dry fruits." (Bircher.)

Carya cathayensis Sargent. (Juglandaceae.) 43952. Nuts of **hickory** from Hangchow, China. Presented by Dr. D. Duncan Main. The only hickory so far found in China, discovered by Mr. Frank N. Meyer in the summer of 1915; a tall tree, 40 to 65 feet high, with grayish bark, and leaves composed of 5 to 7 lance-shaped or oval leaflets with the upper surfaces soft green

and the lower rusty brown. The nuts, which are thick-shelled and elliptic in shape, are collected and sold as a sweetmeat, and a fine clear yellow oil is extracted from them and used in fancy pastry. The wood is tough and strong and is used for tool handles. The tree thrives best at the foot of the mountains in narrow moist valleys, becomes crippled when exposed to much wind, and cannot stand much frost. (Adapted from Sargent, Plantae Wilsonianae, vol. 3, part 1, pp. 187, 188, 1916.)

Castanea vilmoriniana Dode. (Fagaceae.) 43832. Cuttings of **chestnut** from Jamica Plain, Mass. Presented by the Arnold Arboretum. A tree from 50 to 65 feet in height, found in the province of Shantung, China. It is closely related to the common American **chinkapin,** but has larger dimensions throughout, including the nuts, which are edible. (Adapted from Dode, Notes Dendrologiques, in Bulletin de la Société Dendrologique de France, No. 6, pp. 156, 157, 1908.)

Clematis tangutica (Maxim.) Korsh. (Ranunculaceae.) 43833. Plants from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A deciduous woody climbing plant from central Asia growing 8 to 10 feet high, with raggedly serrate gray-green leaflets. The rich yellow flowers are solitary, and the fruits are crowned with long feathered styles. This is said to be the handsomest yellow-flowered clematis in cultivation, the flowers sometimes being 4 inches wide. (Adapted from Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 367.)

Corchorus capsularis L. (Tiliaceae.) 43808. Seeds of **jute** from Amoy, China. Presented by Messrs. E. F. Spears & Sons, Paris, Kentucky, who received it from Mr. Chan Goan Sin, Amoy. "Jute is an annual plant, requiring a rich, moist, but well-drained, alluvial soil and a warm moist climate, free from frost for at least six months. It will grow in sandy-loam alluvial soils from Maryland to Florida and Texas, but will not ripen much seed north of the cotton belt. The seed is sown broadcast, the crop harvested by hand, retted in water, and the fiber cleaned by hand from the wet stalks in the water. It could be grown profitably in this country if there were satisfactory methods for removing the fiber from the stalk and preparing it for market. The fiber is used for burlaps, bagging and gunny sacks." (L. H. Dewey.)

Cotoneaster bullata floribunda (Stapf) Rehder & Wilson. (Malaceae.) 43836. Plant from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A shrub, with oval or narrower dark green bullate leaves, up to 3 inches in length. The flowers are white tinged with pink, but are of little ornamental value because they fall off soon after appearing, and do not attain much size. The globose red fruits occur abundantly in September on the upper sides of the long arching shoots, and give the plant a very beautiful appearance. This shrub is found in western China. (Adapted from Curtis's Botanical Magazine, vol. 135, plate 8284, under *Cotoneaster moupinensis floribunda.*)

Decumaria sinensis Oliver. (Hydrangeaceae.) 43839. Plant from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A climbing shrub from Central China with generally oblong or obtuse leaves up to 3 inches in length, and small white flowers in terminal corymbs. The fruit is a capsule filled with numerous minute seeds. This shrub is very ornamental because of its handsome glossy foliage and the white flowers are very fragrant. It thrives in almost any humid soil and is propagated by greenwood cuttings in summer glass, and rarely by seeds. (Adapted from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 974.)

Enkianthus campanulatus (Miq.) Nichols. (Ericaceae.) 43845. Plants from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A Japanese shrub, 15 or occasionally 30 feet high, with elliptic leaves up to 3 inches long, and yellowish or pale orange flowers with darker veins, occurring in drooping racemes. One of the handsomest species and the most vigorous grower. In autumn the foliage turns a brilliant red. (Adapted from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1115.)

Indigofera amblyantha Craib. (Fabaceae.) 43850. Plants of **indigo** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. An upright shrub from central China, 3 to 6 feet high, with compound bright green leaves from 4 to 6 inches long, very numerous small pink flowers in slender axillary racemes, and linear hairy pods. The pink flowers bloom all summer long, and the shrub is propagated by cuttings and seeds. (Adapted from Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1646.)

Larix potaninii Batalin. (Pinaceae.) 43851. Plants of **larch** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A tree from western China, from 60 to 70 feet high, with yellowish young shoots and somewhat rectangular pointed leaves about an inch long. The cones are egg-shaped, and about 1½ inches long. This tree has much the aspect of the common larch, and according to Mr. E. H. Wilson it yields the most valuable timber in China. (Adapted from Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 9.)

Malus arnoldiana Rehder. (Malaceae.) 43857. Cuttings from Jamaica Plain, Mass. Presented by the Arnold Arboretum. This is a hybrid of *Malus floribunda* with one of the hybrids of *Malus baccata,* and appeared spontaneously in the Arnold Arboretum several years ago. It makes a smaller tree than *M. floribunda,* but its long spreading and arching branches are very graceful, and the flowers produced on long stems are more than twice as large as those of *M. floribunda.* These flowers are a beautiful pink, and it is considered by some persons to be the most beautiful of the crabapples. (Adapted from the Arnold Arboretum, Bulletin of Popular Information, Nos. 3, 1911, and 39, 1913.)

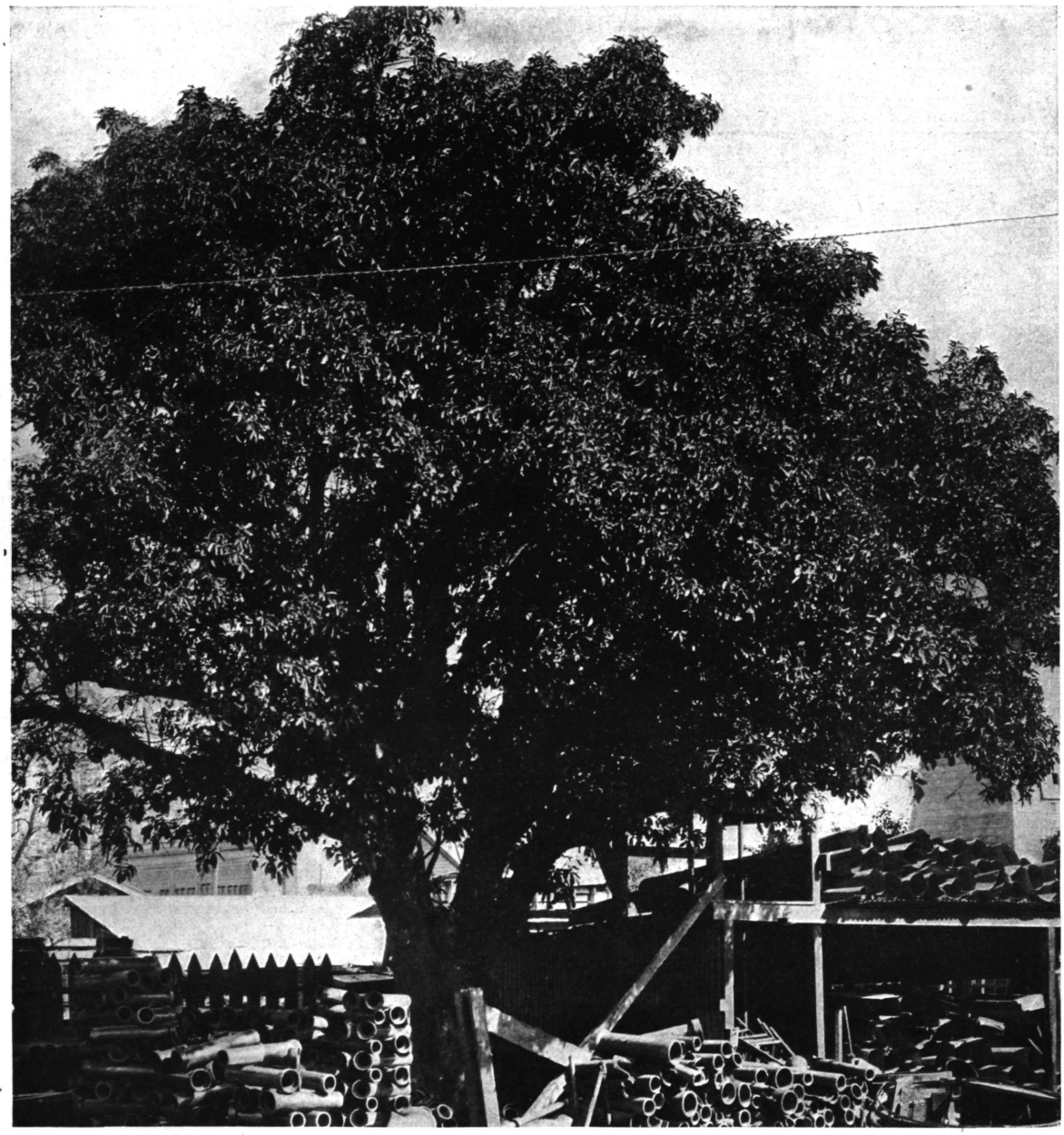
Moringa oleifera Lamarck. (Moringaceae.) 43761. Seeds from Matania El Saff, Egypt. Presented by Mr. Alfred Bircher, Middle-Egypt Botanic Station. "The pods of this variety are free of the bitter taste of the common horse radish tree, and are eaten like the French beans if gathered when in a young state." (Bircher.)

Persea americana Miller. (Lauraceae.) 43932. Cuttings of **avocado** from Coban, Depto. de Alta Verapez, Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer for this Department. "From the yard of Filadelfo Pineda, called de San Marcos. A fruit of medium size, obovoid to pyriform in shape, green, with a rather small seed and flesh of exceptionally rich flavor and good quality. My attention was called to this tree by Mr. R. W. Hempstead, who recommended it as the finest avocado he had eaten in Coban. The tree is said to be a heavy bearer, but this is an off year in Coban and it is not bearing a large crop. Form obovoid, tending to become pyriform, slightly oblique; size about medium, weight 15 ozs., greatest length 4⅝ inches, breadth 3⅜ inches; base rounded, the stem inserted obliquely without depression; apex

rounded; surface slightly rough, deep green in color with few small yellowish dots; skin moderately granular, woody, and brittle; flesh abundant, deep yellow in color, changing to pale green near the skin, said to be of unusually rich flavor; quality probably very good to excellent; seed rather small in comparison to the size of the fruit, roundish oblate in form, 1½ inches long, 1¾ inches broad, with both seed coats adhering closely, and fitting tightly in the cavity. Season at Coban said to be January to April. At the time of my visit the fruits were not quite ripe. The parent tree is 30 years old, with a trunk 18 inches in diameter at the base, and a dense spreading crown 40 feet aroad." (Popenoe.)

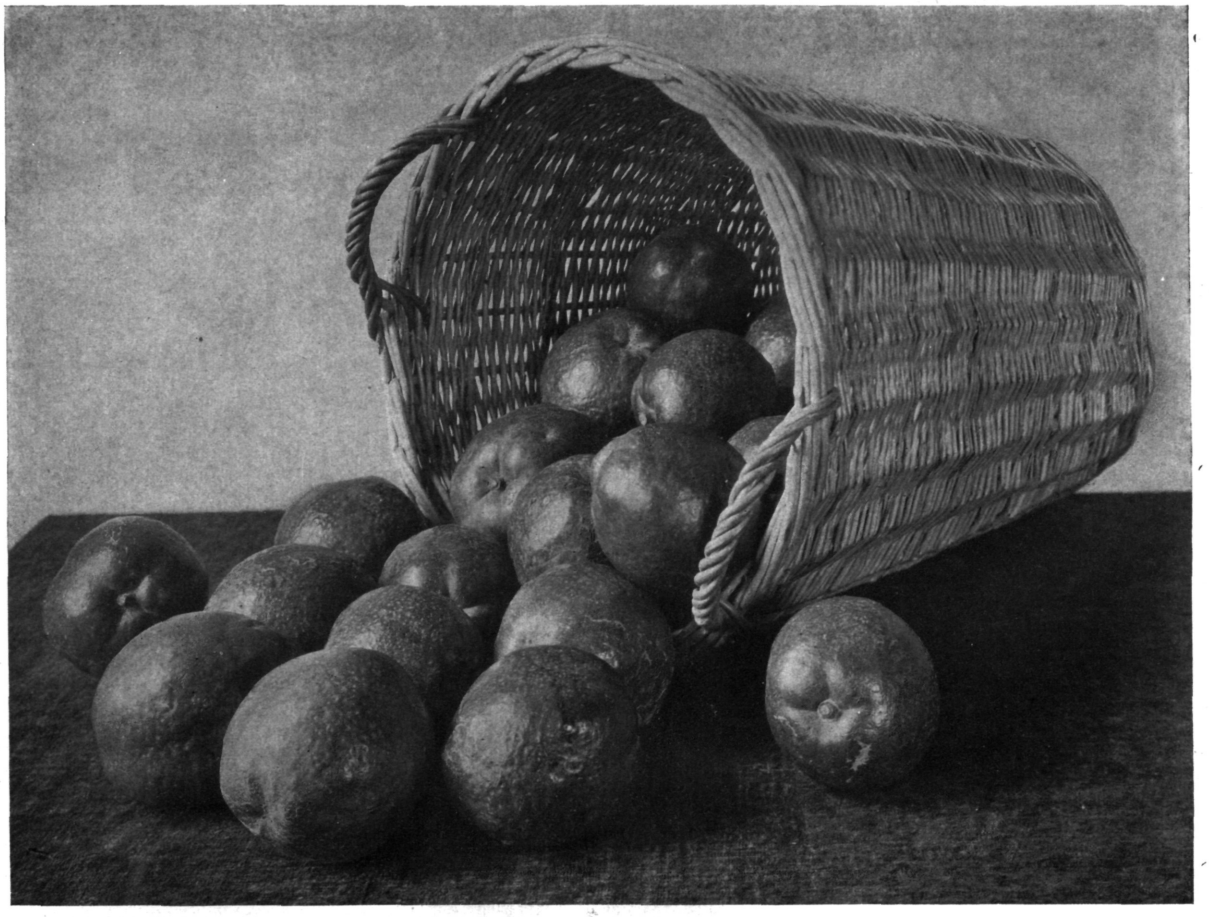
Persea americana Miller. (Lauraceae.) 43933-43935. Cuttings of **Avocado** from San Cristobal Verapaz, Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer of this Department. 43933. "From the dooryard of an Indian in the southwest quarter of the village of San Cristobal. A very attractive small fruit, selected first for its earliness in ripening, and secondly for its productiveness and good quality. It is more or less pear-shaped, weighs about half a pound, is nearly smooth externally and of a bright green color, while the seed is unusually small and the flesh is of good quality for an early ripening variety. It is noteworthy that nearly all the early varieties I have found in Guatemala are inferior in richness of flavor to those which ripen later, and it also seems that a great many of them have large seeds. This was especially notable in the fruits examined around Antigua. Form elliptic pyriform, not distinctly necked; size below medium, weight 8 to 9 ozs., length 3¾ inches, breadth 2¾ inches; base narrowly pointed, the stem inserted almost squarely without depression; apex obliquely flattened though not conspicuously so; surface nearly smooth, bright green in color, with numerous minute yellowish dots; skin 1/16 to nearly ⅛ inch thick, coarsely granular and woody, brittle; flesh cream color, tinged with pale green near the skin, free from fiber and of smooth, firm texture; flavor nutty, pleasant, not so oily as in some of the later varieties; quality good; seed small in comparison with the size of the fruit, broadly elliptic to spherical in form, weight 1 oz., both the seed coats rather thin and adhering closely to the smooth cotyledons. The parent tree is about 45 feet high, with a spread

about equal to its height. The trunk is two feet thick at the base. Apparently the fruits must commence to ripen in October or November, since a great many have already fallen, as indicated by the quantity of fresh seeds on the ground beneath the tree. A large proportion of the fruits left on the trees seem still to be immature, so that this variety can probably be considered to have a very long season. The tree is carrying an enormous crop, as may be expected of one whose fruits are of this size. It is probably safe to say that it will produce more than 2000 fruits this season. This has every appearance of being a very desirable variety." 43934. "From the dooryard of Francisco Muus, in the southwest part of the village of San Cristobal. Taken all around, this seems to me to be much the finest variety of avocado which I have yet seen in Guatemala. Its fine large size, good form, and exceedingly rich flesh, coupled with the fact that the seed is unusually small in proportion to the size of the fruit, make it of great interest to those desirous of obtaining the best varieties of the avocado for cultivation in California and Florida. The fruit is broadly oval, slightly oblique, and weighs 20 to 22 ounces. It is green in color, has a hard brittle skin, and the flesh is smooth, free from fiber, deep yellow in color, and of excellent quality. The extraordinarily small seed is tight in the cavity, as it is in every variety of the Guatemalan type which I have examined up to the present time. The tree seems to be a good bearer, and ripens its fruits in January and February at San Cristobal, which is 4550 feet above sea level. Form broadly oval, slightly oblique; size very large, weight 20 to 22 ozs., length 4½ inches, breadth 4 inches; base obliquely flattened, the stem inserted without depression; apex obliquely flattened, slightly depressed around the stigmatic point; surface pebbled to rather rough, deep green in color, with numerous rather large yellowish dots; skin 1/16 inch thick, slightly thicker over some portions of the fruit, coarsely granular, brittle; flesh of an unusually rich yellow color, changing to pale green near the skin, free from fiber and of fine smooth texture; flavor very rich and pleasant; quality excellent; seed very small in proportion to the size of the fruit, oblate, weighing 2 ozs., tight in the cavity with both seed coats adhering closely to the cotyledons, which are slightly rough for this type. Season January to March at San Cristobal Verapaz. The



A CENTURY-OLD WHITE SAPOTE TREE AT SANTA BARBARA, CAL., CASIMIROA EDULIS.

This tree, situated on De la Guerra Street, is a horticultural landmark in California, having been planted about 1810 by one of the Mexican settlers. It is believed by Franceschi to have been the first tropical fruit tree planted in the State. It bears regularly, but its fruits are small and sterile. The fact that it is still vigorous and robust, though uncared for amidst the most unfavorable surroundings, speaks well for the hardiness and resistance to drought of this Mexican tree. Photographed (P16227FS) by Wilson Popenoe, at Santa Barbara, Cal., October 30, 1914.



FRUITS OF THE WHITE SAPOTE, CASIMIROA EDULIS.

The white sapote is a spring fruit, ripening in May in Florida. It can be picked green and ripened off the tree, has a delicate but extremely agreeable bitter aftertaste which prevents its sweetness from cloying, and its smooth, fiberless, custardlike texture is extremely attractive. To some people it does not appeal, while others are very enthusiastic over it. There are varieties superior to this one, which is from a Mexican seedling tree at the Miami Garden. Photographed (P19536FS) by E. L. Crandall, May 29, 1916.

parent tree is about 30 feet high, the trunk 8 inches thick at the base, and the crown slender, as it is crowded in among other trees. It is bearing a good crop of fruit this season." 43935. "From the cafetal of Don Miguel Gomez, south of the plaza, in the village of San Cristobal Verapaz. This is a fine large fruit almost identical in form and size with the Trapp variety in Florida. It has a smaller seed than the Trapp, however, and the size of the fruit will perhaps average somewhat larger. It is of excellent quality, and the tree is a heavy bearer, so that it looks like a very promising variety. Form spherical to somewhat oblate; size large, weight 18 ozs., length 3 7/8 inches, breadth 3 3/4 inches; base rounded, the stem inserted without depression; apex rounded or almost imperceptibly flattened; surface slightly pebbled, deep green, with a somewhat glossy character, and numerous rather large yellowish dots; skin more than 1/16 inch thick, not quite 1/8 inch, coarsely granular, woody, brittle; flesh creamy yellow, tinged with pale green near the skin, free from fiber and of fine, firm texture; flavor rich and pleasant, not watery; quality excellent; seed medium sized, oblate, weighing nearly 3 ozs., tight in cavity, with both seed coats rather thin and adhering closely to the lightly wrinkled cotyledons. Season January to March at San Cristobal Verapaz, elevation 4550 feet. The parent tree is about 50 feet high, with a spread of 60 feet, the trunk 3 feet in diameter at the base. It is carrying a heavy crop of fruit." (Popenoe.)

Populus maximowiczii A. Henry. (Salicaceae.) 43862. Cuttings of **poplar** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A magnificent large poplar, the largest in eastern Asia, becoming 100 feet high and 6 feet in diameter. The pale brown branchlets are densely pubescent, and the nearly circular leaves, which are whitish or rusty beneath are about 4 inches long. The fruiting catkins are from 7 to 10 inches long, remaining on the tree unopened until late summer or autumn. The shapely head and attractive foliage make this hardy poplar very desirable. (Adapted from Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2763.)

Pyrus communis L. (Malaceae.) 43737-43739. **Pear** from Ottawa Canada. Presented by the Director, Central Experiment Farm. "Professor A. J. Logsdail,

Assistant in Plant Breeding at the Central Experiment Farm, Ottawa, tells me the three varieties of Russian pears constitute a part of an original introduction by the late William Saunders, twenty-five or thirty years ago. Out of a large number of pears brought in from Russia, the following three varieties are the only survivors. They have proved to be very hardy as far as cold resistance is concerned, and have also proved, in a large measure, blight resistant. I saw the three trees growing while at Ottawa last September; they were vigorous specimens, the trunks being eight to ten inches in diameter, and they had a fine growth of wood and foliage. I saw no evidence of blight on the trees. The fruit of all three varieties is said to be fairly good. They here take on all the usual characteristics of the Russian types." (B. T. Galloway.)

Rosa davurica Pallas. (Rosaceae.) 43887. Plants of **rose** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. This is allied to the Cinnamon rose, and is found in Manchuria, Dahuria and Sakhalin. It has slender, straight prickles. The flowers are purple and the fruit scarlet. (Adapted from Rehder, in Bailey, Standard Cyclopedia of Horticulture, vol. 5. p. 2998.)

Rosa ecae Aitchison. (Rosaceae.) 43888. Plants of **rose** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A very spiny shrubby rose, from Turkestan, flowering in early summer with an abundance of small, deep yellow flowers. Recommended for hybridization to create perfectly hardy yellow roses. (Adapted from note of Frank N. Meyer.)

Rosa fedtschenkoana Regel. (Rosaceae.) 43890. Plants of **rose** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A very handsome species from the Turkestan and Kokand regions of central Asia. It is a much-branched, very prickly shrub, with compound leaves 4 to 5 inches long, and large white flowers occurring singly or as many as four in a cluster. The red fruits are somewhat pear-shaped. When introduced in England this rose developed into a rambling, free-growing shrub, which flowered in the month of June. (Adapted from Curts's Botanical Magazine, vol. 127, plate 7770.)

Rosa omeiensis Rolfe. (Rosaceae.) 43904. Plants of **rose** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A stout, branched shrub, from 3 to 10 feet high, with the young shoots covered with dense bristles, and the older stem armed with stout straight thorns. The long, green leaves are composed of 9 to 13 sharply serrate leaflets, and the white flowers, which are over an inch in diameter, occur singly on short lateral twigs. The bright red fruits are up to half an inch in length, and their yellow stalks are very striking in autumn. These fruits are said to be eaten in China, where the plant grows at elevations of from 8000 to 9500 feet. It thrives in good loamy soil, and may be propagated from the freely produced seeds. (Adapted from Curtis's Botanical Magazine, plate 8471.)

Syringa reflexa Schneider. (Oleaceae.) 43922. **Lilac** from Jamaica Plain, Mass. Presented by the Arnold Arboretum. A western Chinese bush 7 to 10 feet high, with oval, sharp-pointed leaves, and violet flowers in long hanging racemes. On account of the remarkable inflorescence of this lilac it is quite distinct from all others of its kind. (Adapted from Schneider, Illustrierte Handbuch der Laubholzkunde, vol. 2, p. 779, and from Sargent, Plantae Wilsonianae, vol. 1, part 2, 1912.)

Tipuana tipu (Benth.) Lillo. (Fabaceae.) 43755. Seed from Cairo, Egypt. Presented by the Director, Horticultural Division, Ministry of Agriculture, Giza Branch. A tall, handsome tree, with rose-colored or creamy white wood, native of the sub-tropical, temperate and cool regions of Agrentina. (Adapted from Lillo, Contribucion al Conocimiento de los Arboles de la Argentina, p. 58.)

Tristania conferta R. Brown. (Myrtaceae.) 43783. Seeds from Cairo, Egypt. Presented by the Director, Horticultural Division, Ministry of Agriculture, Giza Branch. A tall tree, with smooth brown deciduous bark and dense foliage. The alternate leaves are from 3 to 6 inches long, and the rather large flowers occur in 3 to 7 flowered cymes. This tree is a native of Australia, and the timber, which is very strong and durable, is used in ship-building and for making wharves and bridges. The bark is occasionally used for tanning. (Adapted from Maiden, Useful Native Plants of Australia, pp. 330, 608, 609, and from Bailey, Queensland Flora, part 2, p. 636.)

Ulmus pumila L. (Ulmaceae.) 43791. Cuttings of **elm** from China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for this Department. "A weeping form of the ordinary very drouth and alkali resistant elm from North China and Manchuria. The Chinese graft this variety on the common form, generally from 5 to 8 feet above the ground. Obtained from the Botanic Garden at Peking." (Meyer.)

Wistaria venusta Rehder & Wilson. (Fabaceae.) 43792. Cuttings from China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for this Department. "A vigorously growing hardy species of Wistaria, blooming at the end of April and early May, bearing multitudes of rather short and dense racemes of individually large flowers which are of purplish-violet color when first coming out, but when fading away become of pale-bluish color. They exhale a delightful scent. This species is quite drouth resistant and tolerates a fair amount of alkali. The Chinese most often train it as an arbor over a garden walk or over an open space, underneath which seats and tables can be arranged for enjoyment of the beauty and fragrance of the flowers in spring and the shade of the foliage during the hot summer months. Chinese name *Teng lo,* meaning 'Winding rattan'. Obtained from the Botanic Garden at Peking." (Meyer.)

Zea mays L. (Poaceae.) 43789. Seed of **corn** from Guatemala City, Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer. One ear of corn, presented by Don Manuel Lemus, Director of Agriculture. This is of an interesting variety called by Dr. Lemus '*Zea guatemalensis*'. It originated in the Department of Sacatepequez, but this seed was grown in the vicinity of Guatemala City. According to Sr. Lemus, this corn contains very little gluten, grows to a great height, and has proved to be a very valuable strain." (Popenoe.)

Notes from Correspondents abroad.

THE COYO OR SHUCTE

Mr. Wilson Popenoe, Agricultural Explorer, writes from Guatemala City, February 10, 1917:

"In the mountains of northern and eastern Guatemala there grows a fruit closely resembling the avocado, yet sufficiently different in foliage and flower to indicate that it is a distinct species, propably as yet undescribed botanically. For the time being it must, therefore, be termed *Persea sp.* In eastern Guatemala, around Zacapa, Gualan, Chiquimula, and El Rancho it is called shucte, chucte or sometimes chaucte, while in the northern part of the Republic,--immediately across the great Sierra de las Minas,--it is known under the names coyo and coyocté. These latter names have been thought by some to indicate two distinct fruits, perhaps distinct species, but an examination of several trees in the Alta Verapaz shows that they are in reality the same. Apparently the Indians call the cultivated fruit (for it is often grown in their gardens and around their huts) coyo, and the wild tree, which is abundant in the mountains, coyocté. The suffix té in the Quekchi language is said to mean tree; coyocté would therefore mean nothing more than coyo tree.

"In some sections of the Alta Verapaz the coyo is fully as common as the avocado, and seems to be held by the Indians in practically the same high esteem. An American coffee planter who lives in this region tells me that he considers the coyo even superior to the avocado in flavor, and after testing it I am inclined to agree with him.

"The coyo must be considered, then, an unusually interesting new fruit, but it has certain defects which make it seem, on the whole, inferior to the avocado. It has, for example, a large seed in most cases, and the flesh is sometimes disagreeably fibrous. But it is quite variable, like its relative the avocado, and some coyos are much superior to others.

"The coyo tree looks, at first glance, much like an avocado tree, and usually reaches about the same size. It is distinguishable from the avocado by the character of its leaves, which, upon close examination, are seen to differ from those of the avocado in form, to be larger, and to have more or less brownish

pubescence on the lower surface, especially along the midrib. The flowers, when seen from a distance, look like those of the avocado, I have not yet examined them closely.

"The fruits are remarkably similar in general appearance to avocados of the West Indian type, such as are grown in Florida. Like avocados, they vary greatly in form. Most commonly they are pyriform, with a well defined neck, but they are sometimes obovoid, sometimes broadly pyriform, and sometimes long and slender. In size they are also quite variable, but the majority seem to be from three quarters of a pound to a pound and a half in weight. I have heard of coyos weighing two to three pounds, but I have not seen them. The surface is about as smooth as that of a West Indian avocado, and often of similar color,--yellowish green,--but sometimes it is purplish or bronze. The skin is thicker than that of any avocados except those of the Guatemalan type. It is not hard, however, as in the latter, but leathery and pliable. Frequently it adheres to the flesh, which is of a peculiar brownish white color, gives off a milk-like juice when squeezed, and is of fine, oily texture, like the flesh of an avocado. Commonly there are numerous fibers running through the flesh. There are said to be coyos practically free from fiber, but I have not as yet seen them. The flavor is strongly suggestive of the avocado, being of the same rich, nutty character, but is nevertheless distinct; it has a richness and nuttiness of its own, which suggest to me the flavor of a ripe coconut. The seed is larger in comparison to the size of the fruit than it is in the best of our budded varieties of the avocado, but it is no larger than in many seedling avocados. In general appearance it resembles an avocado seed, but the cotyledons, when cut, are seen to be of a dull rose-pink color instead of whitish. The flesh often adheres closely to the seed, making it difficult to prepare the coyo for eating. I have seen some fruits, however, in which the two halves could be separated as in the avocado, the seed coming out readily and leaving a cavity in which seasoning can be placed.

"The coyo is used by the Indians of Guatemala in the same manner as the avocado, which is to say that it is eaten out of hand, without the addition of seasoning of any sort, and frequently to the accompaniment of tortillas,--thin, round cakes, made from Indian corn, which are a staple article of diet

throughout this part of America. I have not yet experimented to see how the coyo tastes when prepared in salads or seasoned with vinegar, salt and pepper, but I have found it excellent when diced and eaten in bouillon, as is often done with the avocado by Guatemalans of the upper classes. To me its flavor is decidedly agreeable, and a good coyo, free from fiber and with a seed not too large in proportion to the size of the fruit, would impress me as a worthy rival of the avocado.

"The tree grows under a variety of conditions. In the valley of the Motagua river, near Zacapa and El Rancho, it is found near the banks of streams. The air in these regions is exceedingly hot and dry during a large part of the year, the hillsides being covered with typical desert vegetation,--cacti, euphorbiads, and thorny leguminous shrubs and small trees. Contrasted with these conditions, the upper Polochic valley, in the Alta Verapaz, where the coyo is exceedingly abundant, is a very moist region, with rainfall,--as the inhabitants state,--thirteen months in the year. In this part of Guatemala I have seen coyos at elevations well above 5000 feet. Like the Guatemalan type of avocado, it is very abundant from 4000 to 5000 feet, but unlike the latter it seems also to do very well at lower elevations, being found around Zacapa at elevations of 500 feet above the sea, where the Guatemalan type of avocado is usually replaced by the West Indian.

"Judging from its behavior in Guatemala, the coyo ought to be successful in both California and Florida. During the coming summer I hope to make a search for superior trees and obtain budwood for introduction into the United States. The season of ripening is from June to August in the lowlands, and in August to October or even November in the highlands. There are thousands of trees in the Verapaz, and it should certainly be possible to find among them a few superior ones, well worthy of propagation.

"In the coyo we have a fruit new to North American horticulture,--so new, in fact, that it does not even have a botanical name,--yet one which is grown by the Indians of northern Guatemala as extensively as the avocado, and apparently looked upon by them as almost its equal. When good varieties have been obtained, and propagated by budding, it seems reasonable to expect that the coyo will find a place in the orchards of the United States, throughout approximately the same belt in which the avocado is grown."

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